Good morning, welcome, I'm honored to join you for these bilateral discussions.

I am John Millhone, Acting Director of International Initiatives for the Office of Energy Efficiency and Renewable Energy within the Department of Energy.

First, let me mention that my Office has for many years strongly supported the use of renewable energy technologies on a broad international basis as a means to help meet world energy needs for societal and economic development. We strongly believe that these technologies are very important today and for the future, are central to sustainable development, and **should be an important element of energy policy and implementation for all countries.**

Viewgraph 1: China faces two major challenges as the country moves toward sustainable economic and energy development: 1) how to reduce reliance on coal combustion with its associated adverse environmental impacts and 2) how to provide energy to 60-80 million poor people living in remote areas. China is paying increased attention to new and renewable energy. The Ninth Five-Year Plan (1996-2000), China adopted several ambitious programs:

-Brightness Program
-Integrated and Comprehensive Rural Electrification
-Riding the Wind Program
-GEF/WB Assisted Renewable Energy Development Project
-UNDP's Capacity Building for the Rapid Commercialization of Renewable Energy Project

All of those programs and policies aim to accelerate the use of renewable energy as a means of providing least-cost electricity to remote areas and diversifying energy sources, thus, improving energy security and curtailing environmental damage.

Viewgraph 2: In February 1995, the U.S. DOE and the Chinese State Science and Technology Commission (now the Ministry of Science and Technology) signed the Protocol for the Cooperation in the Fields of Energy Efficiency and Renewable Energy. In October 1997, DOE and State Planning Commission co-signed the statement: "Energy & Environment Initiative. The Protocol has six annexes, four of which relate to renewable energy. Activities under the Protocol also advance the goals of the US/China Forum on Environment and Development.

Viewgraph 3: Annex I is Rural Energy Development. The goal is to focus on the use of village scale renewable energy technologies to provide electricity to China's rural areas.

We installed a wind/Photovoltaics hybrid systems to 125 households in Inner Mongolia in 1999 As a result of this activity, local officials in Dongwu County have completed a feasibility study and plan for 4,000 hybrid systems over the next five years;

We installed Photovoltaics (PV) panels to 320 households and 10 schools in Gansu in 1998. This success led the Ministry of Agriculture to expand its solar home system project to 10,000 households in six northwestern provinces.; and

We established a national biomass database (here is a CD-ROM for the database).

Viewgraph 4: Annex II is Wind Power Development. The goal is to accelerate sustainable development and deployment of wind power for both grid-connected and off-grid village power applications in China.

Wind energy resource potential in China is estimated to be between 160 and 253 GW and is considered to be superior **to wind potentials in India and US.**

We completed wind resource assessment and mapping for the provinces of Jiangxi, Fujian, and the eastern half of Guangdong in 1998. This picture is a wind resource assessment and mapping for Nan'o Island. The red color represents the best wind spots.

A pilot project is being developed to install a wind/diesel/battery system to electrify 120 households on an island called Xiao Qing Dao located in the Yellow Sea off Shandong Province.

Viewgraph 5: Annex IV is Renewable Energy Business Development, to focus on renewable energy policy analysis and development, information exchange, business outreach, training, project finance, and facilitating US-China business development.

The renewable energy market in China is at the early stages of development and vast majority of US companies are unable to access local government agencies or companies directly. Through our workshops and outreach activities, US and

Chinese companies are developing business activities in China.

DOE brought 13 U.S. company representatives to attend China's 20th Annual Solar Energy Conference and a US/China Renewable Energy Business Development Workshop and Study Tour in China in November 1999. During the event, several potential distributorships, partnerships, and other cooperative activities were initiated.

Viewgraph 6: The Annex VI is Geothermal Electricity Production and Direct Use. Hydrothermal resources are spread widely across China. Preliminary estimates are that recoverable hydrothermal reserves are equivalent to 4.6×10^{11} tons of standard coal.

In response to China's Ministry of Science & Technology's request, DOE in 1998 provided technical assistance to the Tengchong Geothermal Project in the areas of drilling, equipment, safety, and geological issues and provided recommendations.

Geothermal heat pump (GHP) technology, using soil or water temperature as a heat exchanger to heat and cool buildings, is unknown to China. China is very interested in applying this technology as a cost-effective, energy efficient, environmentally friendly way of cooling and heating buildings in China.

Two general agreements between building owners and US GHP manufacturers were signed in September, 1999, and the third one, a hardware purchase agreement, was signed on Feb. 10, 2000. This one is very significant. This agreement represents a firm commitment from Chinese partners to purchase approximately $1 million worth of geothermal heat pump equipment made from Trane Co., a US company, for a 33-story apartment building in Beijing currently under construction.

Viewgraph 7: Key Activities in the Year 2000

- Protocol Progress Report was published in time for this meeting.
- US-China Renewable Energy Forum and Study Tour in Washington DC in April.

  DOE would like to invite key decision makers in Central and local Governments and utilities visit the US to talk to our industry leaders and see firsthand how these renewable and energy efficient technologies actually

work.

- Train SDPC "Brightness Program" personnel
- Install 120 additional PV/wind hybrid systems in IM
- Commissioning of Xiao Qing Dao Project
- A major signing ceremony for a GHP purchase agreement for an apartment building in Beijing

Viewgraph 8: In addition to Protocol, our office also handles activities under US/China cooperation under the Asia/Pacific Economic Cooperation, which has 4 major programs:

- Energy for Sustainable Communities - focusing on best practices, establishing energy indicators and benchmarks, and information exchange. China has selected 3 cities (Linzhou, Guanghan, and Chizhou) for implementation.
- Demand Side Management, DOE will provide training on US technologies to China's utility personnel at a DSM Center located in Wushi.
- Energy Efficiency Training on hospitals, hotels, and industrial end-users in Shanghai. And
- Development of Energy Service Companies

Viewgraph 9: Finally, what does DOE expect from China?

In order to make renewable energy a commercially viable energy source both as distributed power source and utility-scale in the long run, DOE would encourage China to **take market-based approaches** to renewable energy development and deployment. This requires the following reforms:

- reduce VAT (Value-Added-Tax) from current 17 percent for power produced from wind turbines to 6 percent, like small hydro

- simplify project approval process and make it transparent

- encourage creation of Independent Power Producers industry and related private sector infrastructure for support of renewable energy

- promote tax credits for power production rather than investment tax credits

- encourage reduction of heavy subsidies by donor nations to protect the fledgling Chinese markets for solar PV products (World Bank is thinking of pulling its project in Xinjiang, because Shell's 60,000 solar home systems will receive subsidies of more than 60% from Dutch government.)

- It is estimated that more than 90% of wind power installations used concessional financing, which has eroded the Chinese willingness to pay full cost and has led to limited wind development in China

- set a national policy and regulatory framework that encourages use of renewable energy and that invites foreign investment and offers reasonable "returns on investments."

Viewgraph 10: Conclusion

In conclusion, we have been actively pursuing US/China bilateral cooperation in the filed of energy efficiency and renewable energy. We have laid a solid foundation for further cooperation. DOE is committed to assisting China to achieve sustainable development by technical assistance, policy analysis, project development, and business outreach. We look forward to continuing this important work and give our strong commitment to strengthening the ties and cooperation now established between our two countries.

Thanks you again for the opportunity to express these views and meet with our old friends from the State Development & Planning Commission and the Ministry of Science & Technology. I am honored to have this opportunity. I also will be pleased to take your questions.